Amendments to the Specification

Please replace the paragraph beginning at **page 2, line 8**, with the following amended paragraph:

Centrifugal filter units are commonly spun in [[a]] centrifuges using either of two basic types of rotors: *i.e.*, "swinging bucket" and "fixed angle". The fixed angle rotor positions the device at a preset angle relative to the axis of rotation or g-force. In the swinging bucket rotor, the device swings out into a position such that the device is or almost parallel to the axis of rotation or g-force. In centrifuges, the maximum forces are generated at the outermost point along the radius of rotation.

Please replace the paragraph beginning at **page 2, line 25**, with the following amended paragraph:

In U.S. Pat. No. 4,632,761, issued to W.F. Bowers *et al.* on December 30, 1986, a device for use in a fixed angle centrifuge rotor is ~~disclosed~~ <u>disclosed</u>. The method suggested by Bowers *et al.* to create a pocket for the concentrate is to ~~sealing~~ <u>either seal the</u> device off or block the downstream side of the membrane by the underdrain structure. The membrane in this device is perpendicular to the centerline of the device. When this device is positioned and spun in a fixed angle centrifuge rotor, the g-force acts at an angle relative to the membrane surface. As the liquid filters through the membrane, a small amount of liquid stops flowing because the g-force pushes the liquid into the pocket. The device side walls of the housing and the outlet holes of the underdrain support structure define this pocket. The volume will change slightly by spinning the device in a rotor with a different fixed angle. Changing the rotor may result ~~is~~ <u>in</u> a more useful concentrate volume, but changing rotors is not a practical approach due to the time and skill required to do so.

Please replace the paragraph beginning at **page 3, line 18**, with the following amended paragraph:

The cited patents are representative of the general design of currently-available centrifuge receptacles, *i.e.*, wherein the maximum filtration volume is fixed either by the structure and geometry of the receptacle's physical configuration and/or the positioning of its installed membrane. Accordingly, to attempt filtration of a volume less than the maximum preset value, the current practice -- commonly requiring skilled user intervention during filtration -- is to attempt to stop the filtration process at a time that yields the desired volume. This process can be inconsistent and inaccurate, relies heavily on the experience and skill of the user, and can vary depending on sample viscosity, clogging factors in the sample, membrane characteristics, the starting volume of the ~~volume~~ <u>sample</u>, and other factors.

Please replace the paragraph beginning at **page 3, line 30**, with the following amended paragraph:

When working with a fixed angle centrifuge, two options are available to control the filtration volume. The centrifuging process could be stopped at a time that yields the desired volume. As mentioned, this is unreliable. Alternatively, one could obtain and select among a range of different interchangeable rotors having varying rotor angle. The angle will effect concentration volume, but changing <u>centrifuge</u> rotors ~~in centrifuge~~ -- though possible -- is not a simple matter. It requires time and skill, and thus, may be impractical.

Please replace the paragraph beginning at **page 7, line 24**, with the following amended paragraph:

The present invention provides ~~fluid-filtration~~ a fluid-filtration receptacle capable of containing a liquid when placed in a predetermined range of operative positions prior to use in a filtration process and configured to filter a user-specifiable volume of said liquid in the course of said filtration process without user intervention. The receptacle comprises a user-fillable liquid-containable internal area defined by an at least partially-enclosing liquid-impermeable solid material (*cf.*, the receptacle wall). Most importantly, the liquid-impermeable solid material has a releasably-sealed semi-permeable drain disposed therethrough, the semi-permeable drain capable of being either completely or variably unsealed by a user to allow draining of a predetermined corresponding volume of said liquid from said internal area when said receptacle is placed in at least one of said predetermined range of operative positions.

Please replace the paragraph beginning at **page 8, line 6**, with the following amended paragraph:

The liquid-impermeable solid material, which essentially forms the major wall surfaces of the ~~receptacle~~ receptacle, can be prepared from various materials in varying shapes having varying physical dimensions, the only critical limitation being that the resultant receptacle configuration be capable of containing a liquid when placed in a predetermined range of operative positions. Or very simply stated: It must hold water when upright.

Please replace the paragraph beginning at **page 8, line 22**, with the following amended paragraph:

Useful materials for the receptacle walls can be organic, inorganic, or combinations thereof, and can be natural or synthetic. Typical inorganic materials include glass and ceramics. Organic ~~material~~ materials -- which are preferred in respect of costs and suitability for mass production -- typically include thermocurable and thermoformable polymers and resins. Typical polymers and resins include, but are not limited to, phenolaldehyde resins, melamine-aldehyde resins, thermosetting artificial rubbers, acrylic resins, urethane resins, silicone resins, polysulfides, acetals, cellulosics, fluorocarbons, vinyls, styrenes, and polyethylene, polypropylene, and other polymerized olefinically-unsaturated monomers, and the like. In respect of receptacles for use in biochemical centrifugal operations, particularly where low protein binding is desired, the preferred materials include polycarbonate, polyethylene, and polypropylene.

Please replace the paragraph beginning at **page 10, line 4**, with the following amended paragraph:

In general, however, in respect of their numbers, the drain hole and seal components can each comprise a single element or a plurality of ~~element~~ elements, *e.g.*, a plurality of drain holes with a corresponding plurality of independently removable seals; or a plurality of drain holes aligned along measured distances with a plurality of superposed independent removable seals; or a plurality of drain holes aligned along measured distances with a single variably removable seal superposed thereon; or ~~single~~ a single drain hole covered with a variably removable seal; or a single drain hole covered with a plurality of independently removable seals.

Please replace the paragraph beginning at **page 10, lin 21**, with the following amended paragraph:

In respect of their material manufacture, the drain hole and seal components can each be integral to the receptacle wall (*i.e.*, formed of and continuous with the receptacle wall material) or can be ~~assemble~~ assembled thereonto, *e.g.*, drain holes formed by piercing or punching or otherwise providing an opening directly into the receptacle wall, or a drain hole formed through a base plate installed into and through the receptacle wall, or tabular seals formed contemporaneously with the injection molding of a receptacle, or a foil wrapper overlaid onto the drain hole component subsequent to the formation thereof.

Please replace the paragraph beginning at **page 10, line 30**, with the following amended paragraph:

~~Material~~ Materials useful for the manufacture of the membrane filter include synthetic or natural compositions and may be inorganic, organic, or ~~mixture~~ mixtures thereof. Typical inorganic materials include, but are not limited to, glasses, ceramics, metals, cermets (*i.e.*, ceramic/metal composites), and the like. The organic materials are generally polymeric in nature, and can be substituted or unsubstituted. Typical polymers include, but are not limited to, polysulfones; polystyrenes, including styrene-containing copolymers such as acrylonitrile-styrene copolymers, styrene-butadiene copolymers and styrene-vinylbenzylhalide copolymers; polycarbonates; cellulosic polymers, such as cellulose acetate-butyrate; cellulose propionate, ethyl cellulose, methyl cellulose, nitrocellulose, *etc.*; polyamides and polyimides, including aryl polyamides and aryl polyimides; polyethers; poly(arylene oxides) such as poly(phenylene oxide) and poly(xylylene oxide); poly(esteramide-diisocyanate); polyurethanes; polyesters (including polyarylates) such as poly(ethylene terephthalate), poly(alkyl methacrylates), poly(alkyl acrylates), poly(phenylene terephthalate), *etc.*; polysulfides; poly(siloxanes); polymers from monomers having the alpha-olefinic unsaturation other than mentioned above such as poly(ethylene), poly(propylene), poly(butene-1), poly(4-methyl pentene-1), polyvinyls, *e.g.*, poly(vinyl chloride), poly(vinyl fluoride), poly(vinylidene chloride), poly(vinylidene fluoride), poly(vinyl alcohol), poly(vinyl esters) such as poly(vinyl acetate) and poly(vinyl propionate), poly(vinyl pyridines), poly(vinyl pyrrolidones), poly(vinyl ethers), poly(vinyl ketones), poly(vinyl aldehydes) such as poly(vinyl formal) and poly(vinyl butyral), poly(vinyl amides), poly(vinyl amines), poly(vinyl phosphates), and poly(vinyl sulfates); polyallyls; poly(benzobenzimidazole); polyhydrazides; polyoxadiazoles; polytriazoles; poly(benzimidazole); polycarbodiimides; polyphosphazines; *etc.*, and interpolymers, including block interpolymers containing repeating units from the above and grafts and blends containing any of the foregoing. Typical substituents include halogens; such as fluorine, chlorine and bromine; hydroxy groups; lower alkyl groups; lower alkoxy groups; monocyclic aryl; lower acyl groups; and the like.

Please replace the paragraph beginning at **page 12, line 20**, with the following amended paragraph:

In a typical centrifugal operation, the receptacle of the present invention is employed within a centrifugal filter unit in combination with a filtrate collection vial. Although the receptacle and vial will have to be assembled ultimately into a finished centrifugal filter unit prior to centrifugation, the constituent parts of the centrifugal filter unit can be provided to an end-user in packaged kit form, with instructions for the assemblage thereof. The packaged kit can include components needed for the assembly of a single or several centrifugal filter units. Preferably, the packaging is hermetic and its contents sterile.

Please replace the paragraph beginning at **page 12, line 29**, with the following amended paragraph:

An example of a single centrifugal filter unit is illustrated in Fig. 11. As shown therein, a centrifugal filter unit 11 comprises an inventive receptacle 210 (*i.e.*, a receptacle provided with a releasably-sealed semi-permeable drain) and a filtrate collection vial 222. ~~Regardless, the~~ The receptacle 210 is nested within filtrate collection vial 222 such that sample liquid -- loaded into the receptacle 210 and subjected to appropriate pressures and/or other forces (for example, as generated in the course of centrifugation) -- can be filtered out of the receptacles drain (not shown in Fig. 11, *but see* Fig. 2) without physical hindrance, blockage, or occlusion, and be reliably collected within vial 222. The respective load volumes of the vial and receptacle should be established to avoid overflow and spillage in such situation, as well as assure ~~that~~ that filtration can be brought to the desired level of completion before the volume available in the collection vial is consumed.

Please replace the paragraph beginning at **page 14, line 6**, with the following amended paragraph:

Referring to ~~Figure 1~~ Figure 1, a fluid-filtration receptacle 10 is shown, as it would be in a ~~swing~~ swinging bucket rotor. The centrifugal force (g-force) ~~is acting~~ acts along the radius about the axis of rotation *A*. When the fluid-filtration receptacle 10 is spun in a centrifuge (not shown), the sample liquid *S* is forced to the outermost part of the fluid-filtration receptacle 10 about the axis of rotation *A*. The housing 20 is shown with a membrane 52 sealed to an underdrain support 54. The underdrain support 54 has a set of drain holes 56a, 56b, and 56c. The underdrain support 54 is sealed liquid tight to the housing 20. When the receptacle 10 is spun in a centrifuge the liquid in the housing 20 will pass through the membrane 52 and out the drain holes 56a, 56b, and 56c in the underdrain support 54. A sealing device 58 is shown covering the outermost drain hole 56a. When centrifuged, the sample liquid in receptacle 10 will pass through the membrane 52 and out of drain holes 56b and 56c. The filtration will stop at the point where the sample liquid can no longer exit drain hole 56b leaving a concentrate volume shown as level L_b. If the sealing device 58 were to be removed from all drain holes 56a, 56b, and 56c prior to centrifugation, the filtering process would stop at level L_a.

Please replace the paragraph beginning at **page 14, line 25**, with the following amended paragraph:

Referring to Fig. 2, a fluid-filtration receptacle 210 – having a configuration suitable for use in a fixed-angle rotor centrifuge -- is shown, as it would be in a fixed angled rotor. The centrifugal force *g* ~~is acting~~ acts along the radius about the axis of rotation *A*. When the fluid-filtration receptacle 210 is spun in a centrifuge the sample *S* is forced to the outermost part of the device 210 about the axis of rotation *A*. The housing 220 is shown with a membrane 252 sealed liquid tight to the perimeter of an underdrain support 254. The underdrain support 254 has a set of drain holes 256a, 256b, and 256c. The underdrain support 254 is sealed liquid tight to the housing 220. When the receptacle 210 is spun in a fixed angled centrifuge, the sample *S* in the housing 220 will pass through the membrane 252 and out the drain holes 256a, 256b, and 256c in the underdrain support 254. A sealing device 258 is shown covering the outermost drain hole 256a. When centrifuged the sample *S* in receptacle 210 will pass through the membrane 252 and out of drain holes 256b and 256c. The filtration will stop at the point when the filtered solution can no longer exit drain hole 256b leaving a concentrate volume shown as level L_b. If the sealing device 258 were to be removed from drain hole 256a prior to centrifugation the filtering process would stop at level L_a.

Please replace the paragraph beginning at **page 15, line 13**, with the following amended paragraph:

The principles of operation are the same for other like receptacles, whether designed for use in a ~~swing~~ swinging bucket or a fixed angled centrifuge. The liquid ~~will move~~ moves to the outermost point about the axis of rotation and ~~will exit~~ exits the outermost drain that is open to flow.

Please replace the paragraph beginning at **page 16, line 3**, with the following amended paragraph:

In another embodiment, shown in Fig. 4[[.]], the sealing device 458a-e covering drain holes 456a-e is a solid film with perforations 457 between adjacent sealing elements (*e.g.*, elements 458a and 458b). The perforations 457 separate each of the sealing devices 458a-e. The ~~researcher removes the~~ sealing device can be removed by pulling the tab 455a-e corresponding to the desired concentrate volume~~ which exposes~~, exposing the corresponding drain hole 456a-e.

Please replace the paragraph beginning at **page 16, line 18**, with the following amended paragraph:

~~[Referring to Fig. 6,]~~ A sealing device 650, suitable for use for example in the fluid-filtration receptacle 210 illustrated in Fig. 2, is shown in Fig. 6. Assuming the fluid-filtration receptacle is round in shape and rotatable within a centrifuge rotor compartment, if the receptacle in Fig. 2 rotates 180 degrees, the sealing device 258 in Fig. 2 would cover drain hole 256a. The fluid-filtration receptacle 210 would not retain the expected volume. Therefore, if the receptacle 210 cannot be easily or otherwise prevented from rotating in a fixed angled rotor, the sealing device 650 shown in Fig. 6, can be used to better control filtration volume. Sealing device 650 ~~comprise~~ comprises one or more concentric rings of film sealed and covering the drain holes 656. If the tab 655b is ~~removed~~ removed, exposing the middle set of concentric ~~holes~~ holes, a set volume of sample liquid will be retained in the ~~receptacle~~ receptacle, regardless of its orientation within the rotor. The same is true if the tab 655a is removed. The difference being less sample liquid volume will be retained.

Please replace the paragraph beginning at **page 17, line 4**, with the following amended paragraph:

The sealing device of the present invention can be selected ~~form~~ from a variety of materials and exist is a variety of forms. All must provide a liquid tight seal when in place, must be capable of being retained in place during use and must be capable of being selectively removed when desired.

Please replace the paragraph beginning at **page 17, line 12**, with the following amended paragraph:

The invention can also implement a series of separate films, each of which cover one level of drain hole(s) to define a set filtration ~~level~~ levels in the device. Alternatively, a single film which has been scored or perforated or otherwise segmented into strips each of which cover one level of drain hole(s) can also be used to define a set of specifiable filtration levels. Each can be separately removed as desired.

Please replace the paragraph beginning at **page 18, lin 18,** with the following amended paragraph:

Referring to Fig. 9, a drain hole 56 in housing 54 is covered on one side by membrane ~~52~~ 52, and on the other side, by a pierceable film sealing component 958. A punch tool *P* is pushed by a force *R* sufficient to pierce, penetrate, fracture, or otherwise release the sealing component 958. Punch tool *P* creates an opening 959 allowing fluid passing through membrane 52 and drain hole 56 to flow through opening 959.